

## ABSTRACT

A process, method and/or system for preparing polymer-coated nanoparticles and/or other ultrafine particles utilizing a supercritical fluid, e.g., supercritical carbon dioxide (SC CO<sub>2</sub>), as an antisolvent that may be added to a solution of a polymer and an organic solvent in which insoluble nanoparticles or the like are suspended. The coating process occurs when the supercritical fluid (e.g., SC CO<sub>2</sub>) and the nanoparticle-containing suspension are combined to cause the suspended nanoparticles to precipitate as coated nanoparticles. Processing parameters for optimizing and/or enhancing the efficacy and/or efficiency of the coating process, method and/or system and for controlling the coating and/or agglomeration of coated particles are also described. The process, method and/or system has wide ranging applicability, e.g., for coating and/or encapsulation of pharmaceuticals, cosmetics, food products, chemicals, agrochemicals, pesticides, polymers, coatings, catalysts and the like.

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